

What is claimed is:

1. A method for immobilizing a protein to a solid-phase, comprising contacting the protein with the solid-phase having hydrophobic surface in the presence of a lower
5 alcohol, and a halogenocarboxylic acid and/or a long chain alkyl sulfate.
2. The method according to claim 1, comprising contacting the protein with the solid-phase having hydrophobic surface in the presence of a lower alcohol, a halogenocarboxylic acid and a long chain alkyl sulfate.
3. The method according to claim 1, wherein the lower alcohol is ethanol or
10 methanol.
4. The method according to claim 1, wherein the halogenocarboxylic acid is trichloroacetic acid (hereinafter designated as TCA) or trifluoroacetic acid (hereinafter designated as TFA).
5. The method according to claim 1, wherein the long chain alkyl sulfate is sodium
15 dodecyl sulfate (hereinafter designated as SDS).
6. The method according to claim 1, wherein the concentration of the lower alcohol when the protein is in contact with the solid-phase having hydrophobic surface is 30 to 50% (V/V).
7. The method according to claim 1, wherein the concentration of the
20 halogenocarboxylic acid when the protein is in contact with the solid-phase having hydrophobic surface is 0.08 to 10% (W/V).
8. The method according to claim 1, wherein the concentration of the long chain alkyl sulfate when the protein is in contact with the solid-phase having hydrophobic surface is 0.1 to 1% (W/V).
- 25 9. The method according to claim 1, wherein the solid-phase is a hydrophobic membrane.
10. The method according to claim 1, wherein the lower alcohol is ethanol or methanol; the halogenocarboxylic acid is TCA or TFA; and the long chain alkyl sulfate is SDS.

11. The method according to claim 10, wherein the concentration of the lower alcohol is 30 to 50% (V/V); the concentration of the halogenocarboxylic acid is 0.08 to 10% (W/V); the concentration of the long chain alkyl sulfate is 0.1 to 1% (W/V), when a protein is in contact with a solid-phase having hydrophobic surface; and the solid-phase is a hydrophobic membrane.
12. A method for quantitative determination of a protein, comprising contacting a protein staining solution with a solid-phase immobilized with a protein by the method of claim 1, and then determining the concentration of the protein based on a degree of color development generated thereby.
13. A method for immunoblotting comprising using the solid-phase on which the protein is immobilized by method according to claim 1 is used.
14. A method for detecting an abnormal prion protein, comprising;
immobilizing the abnormal prion protein to a solid-phase by treating a sample to be tested containing the abnormal prion protein by the method of claim 1,
reacting with an antibody capable of binding to the abnormal prion protein,
measuring an amount of an antigen - antibody complex generated thereby, and
detecting a presence of the abnormal prion protein based on the results thereof.
15. The method according to claim 14, wherein the abnormal prion protein in the sample to be tested containing the abnormal prion protein is immobilized to the solid-phase, subsequently a substance remaining unbound to the solid-phase in the sample is removed by suction filtration.
16. The method according to claim 14, further washing process of the solid-phase with a solution containing a nonionic surfactant is performed after the process of suction filtration of claim 15 is performed.
17. The method according to claim 16, wherein the solution containing the nonionic surfactant further contains a lower alcohol and a halogenocarboxylic acid.
18. The method according to claim 14, wherein the antibody is labeled with a labeling substance.
19. The method according to claim 18, wherein the method comprises a method for

measuring an amount of the labeling substance of the labeled antibody bound to the abnormal prion protein, and determining an amount of the antigen - antibody complex based on the results thereof.

20. The method according to claim 19, wherein the labeling substance is an enzyme
5 and an amount of the antigen - antibody complex is measured by an enzyme immunoassay.

21. The method according to claim 20, wherein the antigen - antibody complex of the abnormal prion protein and the enzyme labeled antibody is reacted with a substrate solution for the enzyme to generate a coloring reaction by an action of the enzyme,
10 subsequently the substrate solution is removed by a suction filtration.

22. The method according to claim 14, wherein the sample derived from an animal tissue containing the abnormal prion protein obtained by the following processes is used as the sample to be tested:

- 1) a process for disrupting an animal tissue containing an abnormal PrP to be
15 detected in the presence of a surfactant;
- 2) a process for removing an insoluble substance;
- 3) a process for decomposing a normal PrP by adding a decomposing enzyme into the supernatant;
- 4) a process for precipitating the abnormal PrP; and
- 20 5) a process for obtaining a solution of the precipitation after recovery of the precipitate.

23. A method for determining prion disease, comprising detecting an abnormal prion protein by the method according to claim 14, and determining prion disease based on the results thereof.

25 24. A reagent solution for immobilizing a protein comprising a lower alcohol, a halogenocarboxylic acid and/or a long chain alkyl sulfate.

25. The reagent solution according to claim 24, wherein the solution comprises a lower alcohol, a halogenocarboxylic acid and a long chain alkyl sulfate.

26. The reagent solution according to claim 24, wherein the lower alcohol is ethanol

or methanol.

27. The reagent solution according to claim 24, wherein the halogenocarboxylic acid is TCA or TFA.

28. The reagent solution according to claim 24, wherein the long chain alkyl sulfate
5 is SDS.

29. The reagent solution according to claim 24, wherein a concentration of the lower alcohol is 30 to 50% (V/V).

30. The reagent solution according to claim 24, wherein a concentration of the halogenocarboxylic acid is 0.1 to 10% (W/V).

10 31. The reagent solution according to claim 24, wherein a concentration of the long chain alkyl sulfate is 0.1 to 1% (W/V).

32. A kit for detecting an abnormal prion protein, comprising as a constituent reagent:

- 15 (1) an immobilizing reagent solution 1 containing a lower alcohol, a halogenocarboxylic acid and/or a long chain alkyl sulfate;
- (2) an immobilizing reagent solution 2 containing a nonionic surfactant; and
- (3) a labeled antibody capable to bind to an abnormal prion protein.

33. The kit according to claim 32, wherein the immobilizing reagent solution 2 further contains a lower alcohol and a halogenocarboxylic acid.

20 34. The kit according to claim 32, further comprising a substrate of the enzyme capable to generate a signal detectable by a reaction with the enzyme as a constituent reagent, when the labeled antibody is an enzyme labeled antibody.